

Application No. 10/568,727

REMARKS

This application is directed to a chemical-mechanical polishing composition and method. Claims 21, 24, 30, 31, 39, 42, 64, 65, 74, 75, 81, 83, and 86 are pending in the application.

Claims 21, 24, 30, 31 and 42 are rejected under 35 U.S.C. §102(e) as allegedly anticipated by Nishida *et al.* (U.S. 6,669,748). The Office Action states that the Nishida reference discloses the elements of the claimed invention.

The applicant respectfully disagrees. As is well settled, in order to establish anticipation under 35 U.S.C. § 102 a prior art reference must disclose each and every limitation either expressly or inherently in a single prior art reference. *See, Celeritas Techs. Ltd. v. Rockwell Int'l Corp.*, 150 F. 3d 1354, 1360 (Fed. Cir. 1998); *Standard Havens Prods., Inc. v. Gencor Indus. Inc.*, 953 F.2d 1360, 1369 (Fed. Cir. 1991); *Jamesbury Corp. v. Litton Indus. Products*, 756 F. 2d 1556 (Fed. Cir. 1985); *American Hospital Supply v. Travenol Labs.*, 745 F.2d 1 (Fed. Cir. 1984). Here, Nishida fails to disclose the limitation of the claimed concentration of at least one alkaline metal earth selected from the group consisting of calcium, strontium, and mixtures thereof; based on the total weight of the polishing composition. The Nishida reference discloses a dispersion liquid of silica particles having a specified size. The silica particles of the Nishida reference have a Na ion content, in the silica particle, of less than 100 ppm. The Nishida reference also discloses the silica particle to have ions other than sodium in the range of 300 ppm to 2 weight %. All disclosure for calcium or strontium ions is expressed as in the silica particle, not in the polishing composition, as specified in the pending claims. Therefore, the Nishida reference cannot be anticipatory to the pending claims because it does not disclose each and every limitation either expressly or inherently. Applicants respectfully request that the rejection under 35 U.S.C. §102 be withdrawn.

Claim 39 is rejected under 35 U.S.C. §103(a) as allegedly being obvious over the Nishida reference in view of Tsuchiya *et al.* (U.S. Published Application No. 2001/0006224). The Office Action states that the Nishida reference fails to disclose the limitation that wherein the oxidizing agent is present in the polishing composition in an

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amount of about 0.5 to about 8% based on the total weight of the polishing composition. The Office Action uses Tsuchiya to provide the teaching of a slurry comprising 2.5 wt% of hydrogen peroxide as an oxidizing agent.

Applicants respectfully traverse the obviousness rejection because the combination of references fails to teach or suggest all of the claim limitations. In particular, the combination of references fails to teach or suggest the claimed concentration of at least one alkaline metal earth selected from the group consisting of calcium, strontium, and mixtures thereof, based on the total weight of the polishing composition. The deficiencies of the Nishida reference have been described above in relation to the anticipation rejection. The Tsuchiya reference teaches a polishing slurry for a substrate comprising an insulating film and a tantalum-containing metal film on the insulating film. Whatever else the Tsuchiya reference teaches, it does not teach the claimed concentration of at least one alkaline metal earth selected from the group consisting of calcium, strontium, and mixtures thereof, based on the total weight of the polishing composition, and therefore does not cure the deficiencies of the Nishida reference.

Claims 64, 65, 74, 75, 81, 83 and 86 are rejected under 35 U.S.C. §103(a) as allegedly obvious over the Tsuchiya application in view of the Nishida reference. The Office Action states that Tsuchiya discloses a method of polishing a substrate that discloses some of the limitation of the pending claims. The Office Action states that Tsuchiya fails to disclose that the polishing composition comprises about 5×10^{-3} to about 10 mmol/kg of calcium base on the total weight of the polishing composition. The Office Action argues that Nishida discloses a dispersion liquid for polishing comprising 300 ppm of calcium ions. The Office Action then asserts that a person of skill in the art would have found it obvious to modify the Tsuchiya composition with 300 ppm of calcium.

Applicants respectfully disagree. As set forth above in the anticipation rejection, applicants assert that Nishida does not disclose the claimed concentration range for calcium based on the total weight of the polishing composition. The Nishida reference describes a concentration of ions other than sodium, as a ratio of sodium ions, in a silica particle. Therefore, the Nishida reference does not cure the deficiency of the Tsuchiya

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reference and the combination of references do not disclose or suggest all of the claim limitations.

For the above mentioned reasons, the applicants assert that claims 21, 24, 30, 31, 39, 42, 64, 65, 74, 75, 81, 83, and 86 are not anticipated by, nor are obvious over the cited references. Applicants respectfully request that the rejections under U.S.C. §102 and §103 be withdrawn.

Claim 21, 24, 30, 31, 39 and 42 are rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-4, 8-10 of US 7,485,241. The applicants respectfully disagree. However, to expedite the prosecution of this application applicants hereby file a terminal disclaimer to US 7,485,241. The Director is hereby authorized to charge the required fee under 37 CFR 1.20(d) to Deposit Account No. 501599.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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